

CLAIMS

1. A fibre-reinforced pressure vessel comprising one of a rigid gas- or fluid-tight body overwound with fibre filaments, whereby no matrix material is used to bind the fibre filaments and the fibre filaments can move freely with respect to one another and the fibre filaments are wound such that when the pressure vessel is under internal pressure, the fibre filaments are loaded exactly in their longitudinal direction.
2. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel has an isotensoid shape.
3. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel has a cylindrical shape.
4. The fibre-reinforced pressure vessel according to claim 1, whereby the pressure vessel is provided with a coating.
5. The fibre-reinforced pressure vessel according to claim 4, whereby the coating comprises synthetic rubber.
6. The fibre-reinforced pressure vessel according to claim 1 whereby the rigid body is made of high-density polyethene (HDPE) and the fibre filaments are carbon fibres.
7. The fibre-reinforced pressure vessel according to claim 1 whereby the rigid body is made of high-density polyethene (HDPE) and the fibre filaments are glass fibres.
8. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel can withstand a working pressure in the range of 0-5 bar.

9. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel can withstand a working pressure in the range of 0-10 bar.

10. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel can withstand a working pressure in the range of 0-35 bar.

11. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel can withstand a working pressure in the range of 0-100 bar.

12. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel can withstand a working pressure in the range of 0-300 bar.

13. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel can withstand a working pressure in the range of 0-600 bar.

14. The fibre-reinforced pressure vessel according to claim 8, suitable for use as a gas flask for propane or butane or a mixture thereof for household uses.

15. The fibre-reinforced pressure vessel according to claim 11 suitable as a fuel tank, in particular for LPG, for use in motor vehicles.

16. The fibre-reinforced pressure vessel according to claim 12 suitable as a fuel tank for CNG or compressed air.

17. The fibre-reinforced pressure vessel according to claim 13 suitable for use as a cryogenic gas system in space technology applications.

18. The fibre-reinforced pressure vessel according to claim 1 whereby the pressure vessel is provided with an appendage, for example one of a closure member or a pressure valve.

19. A method of manufacturing a fibre-reinforced pressure vessel comprising a rigid gas- or fluid-tight body overwound with fibre filaments, whereby the method comprises the steps of:

- a) providing a rigid gas- or fluid-tight body, fibre filaments and a winding apparatus;
 - b) overwinding the rigid body such that the fibre filaments can move freely with respect to one another and the fibre filaments are wound such that when the pressure vessel is under internal pressure the fibre filaments are loaded exactly in their longitudinal direction; and
- whereby no matrix material is provided.

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